

Application Serial No: 10/509,463

Responsive to the Final Office Action mailed on: July 22, 2008

resistance heating evaporation source with the surface to be vapor-deposited. Shinohara is directed to an electron beam heating vapor-deposition apparatus that uses a reactive vapor-deposition method. The nozzle (20), which is interpreted as the resistance heating evaporation source of claim 5, is arranged to ionize the reactive gas (22) using an electron beam (12) (see Figure 1 of Shinohara). However, the reactive gas (22) is not a metal as required by the second thin film material vapor-deposited by the resistance heating evaporation source of claim 5. Shinohara further teaches that the nozzle (20) is positioned to direct a reactive gas (22) towards the separating wall (16) and not the substrate (F) in order to set the path of the reactive gas (22) after ionization towards the metal vapor (14) so that a superior reaction between the reactive gas (22) and the metal vapor (14) occurs before the metal vapor (14) reaches the substrate (F) (see paragraph [0020] of Shinohara). Thus, Shinohara teaches away from having the nozzle (20) positioned to direct the path of the reactive gas (22) towards the substrate (F), as required by the resistive heating evaporation of claim 5, because the reactive vapor deposition method of Shinohara teaches away from having two thin films deposited on the substrate (F).

In contrast, claim 5 is directed to an apparatus that requires various materials to be evaporated from different evaporation sources and to be deposited in a mixed state on a common area to be vapor-deposited, thus forming a thin film with a desired composition. The structural differences between claim 5 and Shinohara result from their different technical fields. Accordingly, Shinohara has no reason to make its reactive gas (22) a metal or to arrange the nozzle (22) so as to face the substrate (F), as Shinohara is concerned with a reactive vapor-deposition method for ionizing the reactive gas (22) to react with the metal vapor (14) before reaching the substrate (F). Moreover, nowhere does Yano provide a teaching or motivation to modify its apparatus to the features of claim 5, as Yano is only concerned with ionizing the Sm metal material (14a) and does not teach or suggest ionizing the aluminum sulfide (15a) or discuss any resulting benefits of ionizing the aluminum sulfide (15a). Thus, neither Yano nor Shinohara provide motivation to modify the apparatus of Yano to arrange the EB evaporation source (15), the electron gun (51) and the K-cell (14) so that a path along which the electron beam emitted from the electron gun (51) reaches the EB evaporation source (15) intersects with

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a line segment connecting the K-cell (14) with the surface to be vapor-deposited, as required by the electron beam evaporation source, the electron beam source and the resistance heating evaporation source of claim 5. For at least these reasons claim 5 is not suggested by the combination of Yano and Shinohara and should be allowed. Claims 7 and 9 depend from claim 5 and should be allowed for at least the same reasons.

Claim 8 is rejected as being unpatentable over Yano in view of Shinohara and further inv view of Suzuki (US Patent No. 4,622,919). This rejection is traversed. Claim 8 depends from claim 5 and should be allowed for at least the same reasons described above. Applicants do not concede the correctness of this rejection.

Conclusion:

Applicants respectfully assert that claims 5 and 7-9 are in condition for allowance. If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Applicants' primary attorney-of record, Douglas P. Mueller (Reg. No. 30,300), at (612) 455-3804.



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Respectfully submitted,

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